# A new subspecies of Black and Yellow Silky Flycatcher, *Phainoptila melanoxantha*, from Costa Rica

*by Gilbert Barrantes & Julio E. Sánchez*

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The Black and Yellow Silky Flycatcher *Phainoptila melanoxantha*, (Ptilogonatidae) is endemic to the high mountains of southern Middle America (Slud 1964, Wolf 1976). The monotypic genus *Phainoptila* is atypical in external appearance and behaviour. Species of the other two genera (*Phainopepla* and *Ptilogonys*) of the family are crested and possess a very uniform plumage, characteristics absent in *P. melanoxantha*. Also, species of *Phainopepla* and *Ptilogonys* forage on the wing, capturing insects and plucking fruits, whereas *Phainoptila* picks berries from a perch (Stiles & Skutch 1989). Although the Black and Yellow Silky Flycatcher was considered to be restricted to the Cordilleras de Talamanca and Volcánica Central in Costa Rica and Cordillera Central in Panamá by Slud (1964), this species was later reported from the Cordillera de Tilarán (Law & Fogden 1981). In 1980, F. G. Stiles observed this species on Volcán Orosi, and in 1983 collected a specimen from Volcán Miravalles, in the Cordillera de Guanacaste the northernmost mountain range in Costa Rica. Stiles (in Phillips 1991) suggested that the population of the Cordillera de Guanacaste represented a new subspecies, but lacked sufficient material to describe it. Our observations and collections have overcome this difficulty and confirmed the distinctness of this northern form, which we describe herein.

In Costa Rica, the Black and Yellow Silky Flycatcher inhabits the highlands of the four mountain ranges (cf. Stiles & Skutch 1989). These cordilleras are separated by deep valleys, and extend from northwest to southeast along the longest axis of this country (Gómez 1986, Fig. 1). The Cordillera de Talamanca is the longest and highest of all four, with a dozen peaks above 3,000 m. The Cordillera Volcánica Central is 86 km long with an orientation from west to southeast and includes three peaks above 2,900 m. The Cordillera de Tilarán, 40 km long and with only one mountain above 1,800 m, is oriented from the north to southwest. These three cordilleras are of Tertiary age. Finally, the Cordillera de Guanacaste, which dates from the Quaternary (Castillo 1984), extends northwest for 80 km. This Cordillera comprises six isolated volcanic massifs. Since 1997, we have made several ascents to the upper part of different massifs of the four cordilleras to collect specimens of this bird.

In order to analyze the geographic variation of *P. melanoxantha*, G. B. collected specimens from Cerro Echandi, Villa Mills, Madre Selva (Cordillera de Talamanca, [Tal]), Volcán Barva (Cordillera Volcánica Central, [VCe]), Cerro Amigos (Cordillera de Tilarán, [Til]), Volcán Miravalles and Volcán Cacao (Cordillera de Guanacaste, [Gua]). These specimens, in addition to those already housed in the Museo de Zoología

at the Universidad de Costa Rica, allowed us to discern two types, one found in the Cordilleras de Talamanca and Volcánica Central, and the other, an undescribed subspecies, which occupies the Cordilleras de Tilarán and Guanacaste.

## *Phainoptila melanoxantha parkeri*, new subspecies

*Holotype*. No. 3858 of the Museo de Zoología, Universidad de Costa Rica, an adult male collected at 1640 m on Volcán Cacao (10°58′50"N, 85°28′20"W, Provincia de Guanacaste) on 3 March 1997 by G. Barrantes.

*Diagnosis*. This form differs from populations of the Cordilleras de Talamanca and Volcánica Central by its completely yellow belly in males (as opposed to grey), and its shorter wing and tail (Fig. 2, Tables 1, 2) and, in females, the streaked pattern of the breast.

*Description of the type*. Head, throat, back, wings, and tail black (89, Jet Black, following Smithe 1974, 1981). Rump and the whole belly, including lower tail coverts yellow (near 55, Spectrum Yellow). Iris dull red, bill black, feet and tarsi black, and

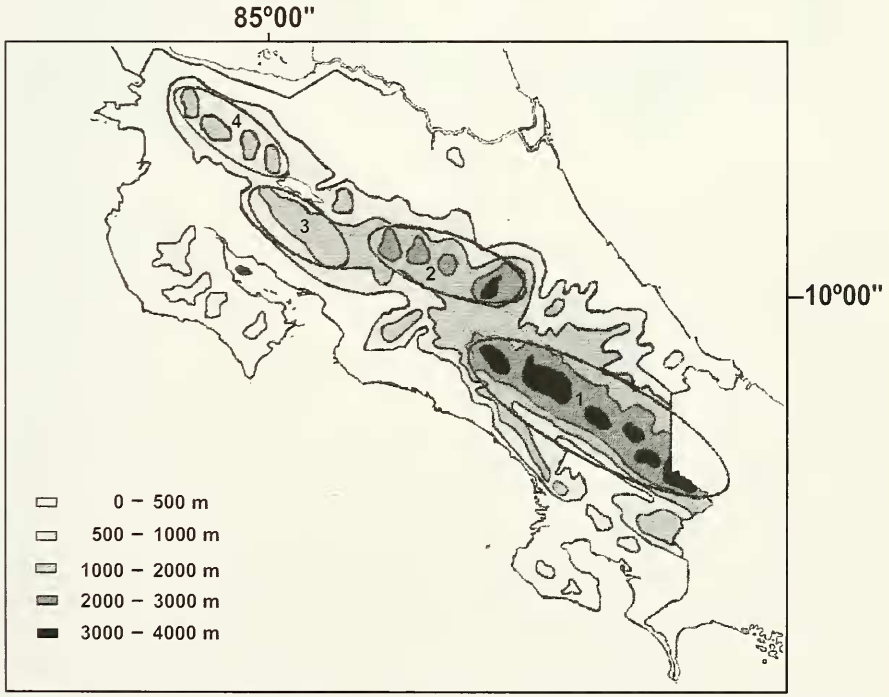


Figure 1. Geographic location of the four cordilleras in Costa Rica (1–Cordillera de Talamanca, 2–Cordillera Volcánica Central, 3–Cordillera de Tilarán, and 4–Cordillera de Guanacaste).

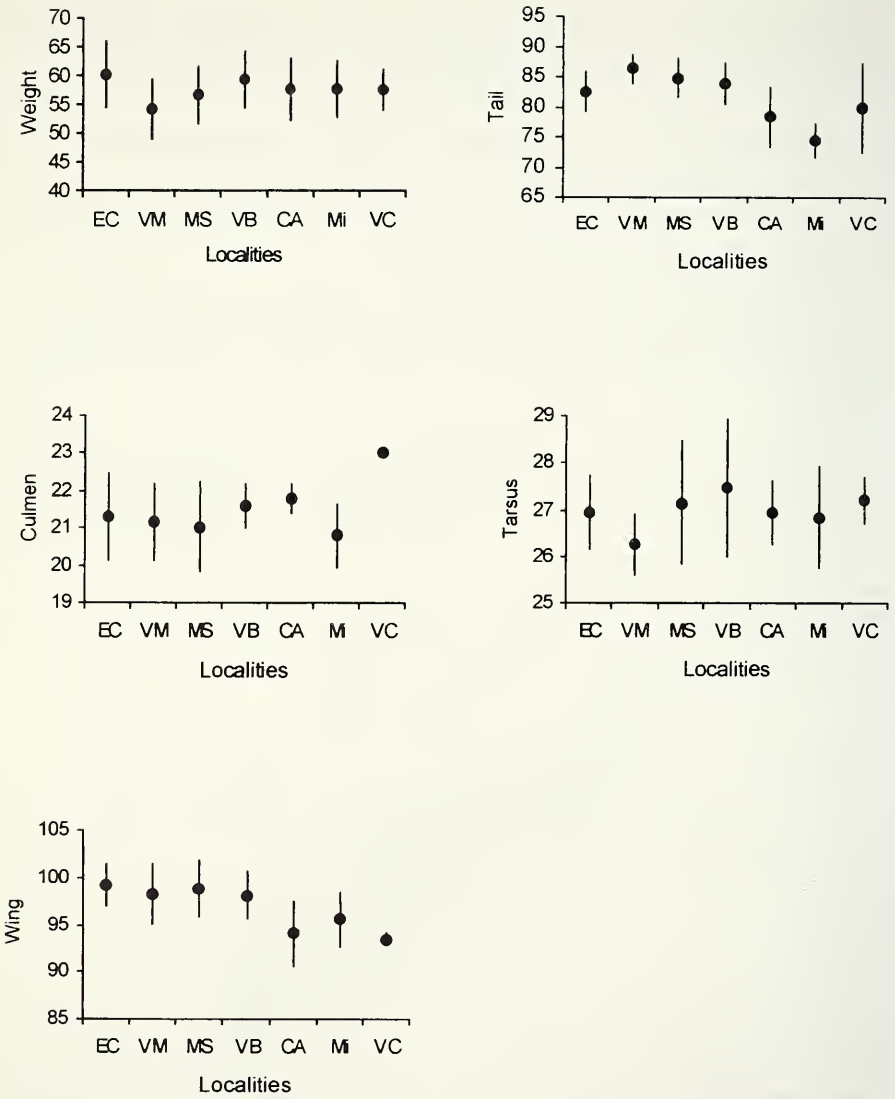


Figure 2. Measurements (average and standard deviation for males and females combined) of *Phainoptila melanoxantha* from seven localities arranged from southeast to northwest. Weight is given in g, the other variables in mm. Localities are: EC=Cerro Echandi; VM=Villa Mills; MS=Madre Selva; VB=Volcán Barva; CA=Cerro Amigos; Mi=Volcán Miravalles; and VC=Volcán Cacao.

sole yellowish. Weight 60.0 g, moderate fat. Culmen, 23.0 mm, wing (flattened) 94.0 mm, tail 85.0 mm, and tarsus 26.8 mm.

*Variation*. Eight males collected from Cerro Amigos (5, Til), and Volcán Miravalles (3, Gua) resemble closely the type in colour and measurements. Six females collected at the same localities (2 and 4 respectively) are all very much alike in colouration. They have the pileum black, hindneck dark neutral grey (84) shading to light neutral grey (85) on the face and throat. Back, rump, wings, and tail greenish-olive (49). The distal third of breast feathers are shaded from olive yellow (52) to yellow (55, Spectrum Yellow). This gives a pattern on the breast of faint yellowish streaks upon a greenish-olive background. The belly shades from neutral grey anteriorly to smoke grey posteriorly. Flanks and under tail coverts are yellow (55, Spectrum Yellow). For comparison of colour and measurements with females of the Cordilleras de Talamanca and Volcánica and Volcánica Central see Fig. 2 and Table 2.

*Distribution*. At present this form has been found at the Cordilleras de Tilarán and Guanacaste above 1550 m, including Volcán Orosí, the northernmost massif of this cordillera (Stiles pers. comm.). *Specimens examined*. Cerro Echandi (Tal): 2 males (UCR 3934, 3936), 3 females (UCR 3932, 3935, 3937); Villa Mills (Tal): 3 males (UCR 3896, 3909, 3924), 2 females (UCR 1999, 3910); Madre Selva (Tal): 6 males (UCR 3177, 3178, 3851, 3852, 3902, 3915), 3 females (UCR 3897, 3918, 3930); Volcán Barva (VCe): 6 males (UCR 3898, 3901, 3912, 3925, 3927, 3931), 3 females (UCR 3893, 3903, 3911); Cerro Amigos (Til): 3 males (UCR 3862, 3929, 3939), 2 females (UCR 3861, 3863); Volcán Miravalles (Gua): 3 males (UCR 3869, 3872, 3874), 4 females (UCR 3849, 3871, 3873, 3881); Volcán Cacao (Gua): 1 male (UCR 3858), 1 female (UCR 3854).

TABLE 1

Variation in colour between males of the two forms (Cordilleras de Talamanca/Volcánica Central and Cordilleras de Tilarán/Guanacaste) of *Phainoptila melanoxantha*

| | Talamanca and Volcánica Central | Tilarán and Guanacaste |
|---|---|---|
| Head | Jet black (89). | Jet black. |
| Back | Jet black. | Jet black. |
| Wings | Jet black. | Jet black. |
| Tail | Jet black. | Jet black. |
| Rump | Spectrum yellow (55). | Spectrum yellow. |
| | A gradual transition band from olive-yellow (52) to spectrum yellow of about 1 cm is present on the upper rump. | Transition band absent. |
| Breast | Citrine (51). | Citrine. |
| Sides and flanks | Citrine anteriorly and spectrum yellow (55) posteriorly. | Spectrum yellow. |
| Abdomen | Neutral grey (84). | Spectrum yellow. |
| Tail undercoverts | Citrine. | Spectrum yellow. |

Parentheses enclose numerical code for Smithe's (1974) colour system.

*Etymology*. It is our pleasure to name this well defined subspecies for Theodore A. Parker III, not only in honour of his outstanding contribution to Neotropical ornithology but also for his great contribution to the conservation of our biodiversity.

## Ecology

The habitat of *P. m. parkeri* is the elfin forest on steep slopes and ridges of the highest mountains of the Cordilleras de Tilarán and Guanacaste. This forest is dominated by *Clusia* sp (Clusiaceae), the only tree species that regularly attains a height over 5–6 m. Below this canopy layer and between *Clusia* trees a dense, even subcanopy 4–5 m high is formed by various tall shrubs and treelets, including *Blakea* sp, *Miconia* sp (Melastomataceae), *Schefflera* sp, *Oreopanax* sp (Araliaceae), *Geonoma* sp (Arecaceae), *Psychotria* spp, *Cosmibuena* (Rubiaceae), and *Rapanea* spp (Myrsinaceae) (Lawton 1980). The ground is often covered with a mat of roots and moss from which some herbs, such as *Heliconia* spp (Heliconiaceae), *Anthurium* spp (Araceae), and bromeliads, emerge. Although this habitat varies slightly in structure, it is very similar in vegetation composition to that occupied by the other populations of *P. melanoxantha* at the Cordilleras Volcánica Central and Talamanca.

TABLE 2

Variation in colour between females of the two forms (Cordilleras de Talamanca/Volcánica Central and Cordilleras de Tilarán/Guanacaste) of *Phainoptila melanoxantha*

| | Talamanca and Volcánica Central | Tilarán and Guanacaste |
|---|---|---|
| Head | Pileum jet black. Hindneck dark neutral grey shading to light neutral grey on face and throat. | Pileum jet black. Hindneck dark neutral grey shading to light neutral grey (85) on face and throat. |
| Back | Greenish-olive (49). | Greenish-olive (49). |
| Rump | Greenish-olive. | Greenish-olive. |
| Breast | Greenish-olive. | Breast feathers shade from olive-yellow (52) to yellow (55, Spectrum yellow) distally, giving a pattern of faint yellowish streaks upon a greenish-olive background. |
| Wings | Greenish-olive. | Greenish-olive. |
| Tail | Greenish-olive. | Greenish-olive. |
| Sides and flanks | Citrine anteriorly and spectrum yellow posteriorly. | Citrine (51) anteriorly and spectrum yellow posteriorly. |
| Abdomen | Neutral grey (84). | Light neutral grey anteriorly, shading to smoke grey (45) posteriorly. |
| Lower tail coverts | Spectrum yellow. | Spectrum yellow. |

The altitudinal distribution of *P. melanoxantha* varies with the height of the cordilleras and the distribution of the habitat occupied by this bird. The altitude and the habitat available for *Phainoptila* decrease from the Cordillera de Talamanca northward. Thus, the lower limit of distribution for the species is at *c.* 2,400 m, in the Cordillera de Talamanca, above 2,000 m in the Cordillera Volcánica Central, and 1,550 m on the Cordilleras de Tilarán and Guanacaste. Occasionally, a few individuals of this species move downslope, especially during the non-breeding season, to 1,800 m on the Cordilleras Volcánica Central and Talamanca; movements on other cordilleras are less extensive. *Phainoptila melanoxantha* is almost exclusively frugivorous. We analyzed stomach contents from 58 specimens collected throughout the geographic range and insect remains were found in only one of them. Even fledglings were fed with fruits (pers. obs.). The diet consists of at least 40 different fruit species, although birds showed a strong preference for fruits of *Schefflera* spp in all localities surveyed. Diet and preference for *Schefflera* spp are similar for both forms of *P. melanoxantha*.

## Geographic variation in *Phainoptila melanoxantha*

Geographic variation in the colour pattern of *Phainoptila melanoxantha* indicates the existence of two well-defined forms (Tables 1, 2), one corresponding to the populations of the Cordilleras de Talamanca and Volcánica Central and the second to those populations that inhabit the Cordilleras de Tilarán and Guanacaste. The populations present at the Volcán Viejo and Cerro (volcano) Platanar, the nearest populations of the Cordillera Volcánica Central to the Cordillera de Tilarán, present the same colouration as other populations on that mountain range (pers. obs.).

We also compared five morphological features (weight, culmen, wing, tail, and tarsus) among different locations of *P. melanoxantha*. From these characters, tail and wing were significantly shorter for *P. m. parkeri* (One-way ANOVA. $p<0.01$ in all cases). Overall, these analyses confirm the patterns displayed in Fig. 2, where it is shown that tail and wing of *P. m. parkeri* are shorter than those of populations from the Cordilleras de Talamanca and Volcánica Central.

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# Observations on the birds of Cosmoledo Atoll, Seychelles

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Although Cosmoledo Atoll, Aldabra group, is recognized as an "Important Bird Area" by BirdLife International (Rocamora & Skerrett, in press), its avifauna has been poorly studied. Most published reports are based on short visits to only some of the more than 15 islands in the group (Fig. 1)—October 1878 (Rivers 1878), 9–12 October 1901 (H. A'C. Bergne, reported by Benson (1970)), 14–19 September 1907 (Dupont 1907), October 1937 (Vesey-Fitzgerald 1940, 1941), 5–6 October 1967 (Parker 1970), 6 March 1968 (Benson 1970), 6 March & 14 September 1968 (Bayne *et al.* 1970), 13 February 1970 (Gillham 1977), 12–13 April 1996 (Skerrett 1996). The total land area is approximately 5.2 km 2 , or 3.4% of that of the whole atoll (Bayne *et al.* 1970). This remote atoll (Fig. 2) has been continuously exploited for birds, turtles, fish, and guano since at least the mid-1800s. The composition of the resident avifauna has been incompletely described in the literature, and the recent status of the various bird species is poorly documented. Our study reports observations we made during visits to the atoll on 7–13 December 1996 and 23–25 April 1997, discussed from the perspective of our collective long term residence on Cosmoledo (eight visits by JAM since 1981, including five months residence (January–May) in